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ABSTRACT

Contained are guidelines and an extensive list of books and journals suitable for an undergraduate chemistry library. The guidelines are concerned with the organization and acquisition policy of chemistry libraries, and with inter-library loan and photoduplication services. Various sections of the report deal with journals and abstracts, review serials, foreign language titles, U.S. Government publications and a suggested titles list. The books in the titles list are in the areas of analytical, biological, inorganic, organic and physical chemistry. In general, introductory texts have not been included. The list is arranged alphabetically with entries by author or editor unless the work is better known by title. The library of Congress classification number and the Dewey Decimal classification number, when available, are given for each entry. Book prices are also given. The report concludes with a directory of publishers and dealers. This report should be most useful for college libraries, science teachers, and students. (LC)

GUIDELINES AND SUGGESTED TITLE LIST for UNDERGRADUATE CHEMISTRY LIBRARIES

Revised 1969

A Report Authorized by the
ADVISORY COUNCIL
ON COLLEGE CHEMISTRY

Edited by

D. N. MARQUARDT
(University of Nebraska at Omaha)

A limited number of additional copies of this publication are available free of charge upon request to:

Advisory Council on College Chemistry
Department of Chemistry
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Stanford, California 94305

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Advisory Council on College Chemistry

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The Advisory Council on College Chemistry, an independent group of chemists, has as its goal the improvement of undergraduate chemistry curricula and instruction. The Council collects and disseminates information through the activities of standing committees on Freshman Chemistry, Curriculum and Advanced Courses, Teaching Aids, Teacher Development, Science for Non-Science Majors, Two-Year College, and Resource Papers. Additional *ad hoc* groups act as necessary to further assist the Council in providing leadership and stimulus for imaginative projects on the part of individual chemists.

The Council is one of a group of collegiate commissions supported by grants from the National Science Foundation.

ADVISORY COUNCIL ON COLLEGE CHEMISTRY

SPECIAL PANEL MEETING TO REVIEW GUIDELINES AND PREPARE TITLE BOOK LIST FROM RESULTS OF POLL OF SPECIALISTS AND DEPARTMENTS

Palo Alto, California, July 28-29, 1968

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(The editor gratefully acknowledges Dr. Melvin G. Mellon's preparation of the revision of section VII)

ACKNOWLEDGEMENT

The editor and the panel are particularly indebted to Professor Ruth Power and the staff of the University of Illinois Chemistry Library for the preparation of the bibliographic detail of the suggested title list.

I. INTRODUCTION

The *Guidelines and Suggested Title List for Undergraduate Chemistry Libraries* as prepared for the Advisory Council on College Chemistry's Teaching Aids Committee in 1965-66 proved to be one of the most sought after AC_3 publications.

Knowing full well the necessity of keeping any such list up-to-date, if it is to serve the purpose for which it was intended, the revision of the guidelines was initiated in the spring of 1968. After consultation with many of the former special panel members, it was decided to follow essentially the same approach and basic philosophy of the original panel in the preparation of this edition.

The most complete list of recent chemistry books and journals possible to assemble was submitted to professors of national reputation in both teaching and research for their evaluation. Using these evaluations as a guide, the special panel members selected the books and journals in this edition. No book or journal was listed without the serious consideration of the entire panel.

The panel kept the list as short as possible consistent with the original goals of the guidelines and were fully cognizant that many excellent titles were not included. They also realize that errors of omission and commission were probably inevitiable and welcome suggestions or corrections. Please direct your comments to:

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II. PRACTICAL LIBRARY CONSIDERATIONS

Organization

It can be argued that, more than any other single factor, the character of a chemistry department is demonstrated by the holdings in its library and their accessibility to faculty and students. For this reason, the chemistry library should be considered a primary educational arm of the department. This library should be organized as a service unit and operated to meet the educational and research needs of its users. To accomplish this end there should be close cooperation between library users and library staff. A faculty library committee advisory to the librarian can be an effective means of achieving efficient solutions to user need, and acquisition problems.

The chemistry library should preferably be in the chemistry building to provide easy access to journals and books for faculty and students. Combined science libraries can have added advantages if they are close to the departments served. The library should be readily available for general reading and browsing, for class assignment reading and for information retrieval.

Collection

A collection of basic books, reference works, and adequate journal holdings is essential for every chemistry library and should be integrated closely with the teaching program. To acquire an initial collection, a special fund may be required. The acquisition of library materials in microformat (microfilm, micro-opaque cards and microfiche) is becoming feasible for even the small library and for the following reasons should be considered when building a library collection: a) the increasing availability of research materials and journals in microformat at a nominal cost; b) the improvement in quality of these forms; and c) the improvement in quality of the readers for micropublications.

The chemistry library collection can be strengthened by gifts of journals and books from faculty members and alumni. Often, chemists in

industrial positions are willing to donate parts of their collections to the library when its needs are made known to them. A wide variety of interesting and attractive "house organs" are available without cost from industrial companies.

Acquisition Policy

Major cost determinants in the acquisition of any publication are those of acquiring, maintaining, and housing, rather than the initial list price. Almost identical costs are involved in the acquisition of paperbacks, hard cover books, and journals. The librarian must be guided by these costs in determining the acquisitions program.

Costs begin at the moment of order. The processing and placing of an order is a cost. The receipt, classification and cataloging result in yet another. Nor is the assumption of space on the shelf the final consideration. There may also be the maintenance costs of repair or rebinding. It becomes obvious in many cases that the initial cost of the volume is of relatively minor significance.

The hard cover versus paperback book decision can be best determined in accordance with the librarian's opinion of the potential extent of its use. Heavy circulation of a paperback, whose list price is low, will ultimately make that item more costly than the hard bound edition because of time and materials needed to maintain it in proper condition. This does not mean to suggest that the paperback has no place in the library. On the contrary, in many cases, paperbacks with their inherent disadvantages are still necessary for a complete collection. The new or growing library will discover that many of the classics in chemical literature exist only in soft cover reprint form. Also, the book whose content is of interest to a limited number of patrons, or which is essentially ephemeral in nature may be considered for purchase in paperback form. For paperback titles which will be in greater demand, a good quality, but inexpensive binding such as Perma-bind or Vina-bind, should be considered. This binding increases the life of the book to essentially the life of the paper pages.

It is in the area of journal acquisition that costs are of major consideration to the librarian: the initial subscription and renewal cost, the binding and housing costs, and yet later possibly the cost of transfer to storage. It is important that the library have an ever increasing annual operating budget merely to maintain the level of an existing collection. With the constant increase in subscription prices, plus increasing binding costs, it is one thing to maintain the collection level, and yet another to expand and improve the collection.

The "friend of the library," the distinguished alumnus who bequeaths his personal library or collection of bound journals to the library, may create an acquisitions problem. The local industrial research firms who provide specific "gift" subscriptions in an area of remote interest or ephemeral nature also affect the library budget. The inference in these bequests is that the library is indeed fortunate in being the recipient, when, in fact, the library may become only a repository for a once useful collection whose sole function may now be the taking up of space and the collecting of dust.

Interlibrary Loan and Photoduplication

By means of interlibrary loan and photoduplication, the library with a small collection can more effectively serve its clientele. The American Library Association Interlibrary Loan Code should be consulted for the kind of materials proper to request on loan. The trend is toward microfilm, microfiche, or photocopy in lieu of the actual printed material. The standard interlibrary loan and photoduplication forms available from library supply companies are recommended. For prompt service, these forms should give all the bibliographical information that the borrower can furnish, especially the source of his reference. The *Chemical Abstracts List of Periodicals; Key to Library Files and Other Information* is excellent for locating journal title holdings. The latest such list was issued by Chemical Abstracts Service in 1961 and is available from the Special Issue Sales, American Chemical Society.* Scheduled for publication by Chemical Abstracts Service in late 1969 is *Access*, a comprehensive

* For address, see Section IX.

about the time of publication of the book, and it is recommended that every department of chemistry subscribe to this publication. Like *The AAAS Science Book List for Young Adults*, this quarterly is particularly valuable for the first two years of college. It provides a list of books that will be especially tempting to the non-scientists.

The Council of Chief State School Officers with the assistance of the National Science Foundation and others provides a comparable service in its 1966 edition of the *Purchase Guide for Programs in Science and Mathematics*. This purchase guide contains a bibliography of books in chemistry. The bibliography includes brief annotations and the college teacher or librarian is well advised to review the titles and sources listed.

Other techniques are available to colleges with larger budgets for the acquisition of titles in chemistry. One sound approach is to obtain advice from schools that have well established and good libraries. Some college chemistry libraries issue lists of their new titles periodically and they are usually available upon request. It may be presumed that the titles appearing on these lists are of higher caliber than unselected titles.

The most comprehensive current booklist in chemistry is that published annually in the September issue of the *Journal of Chemical Education*. No attempt is made in this journal to list the books critically. However, the listing of titles serves as a very convenient way for chemistry professors and librarians to check off those titles that interest them. All books found in the *Journal of Chemical Education* booklist are on exhibit at the fall national meeting of the American Chemical Society. Perusal of a book at this exhibit makes a more objective judgement possible. The April issue of the *Journal of Chemical Education* annually includes a list of similar usefulness entitled "Paperback Books in Chemistry and Related Sciences."

The most valuable resource for evaluating books to purchase are the book reviews published in the various chemical journals. For general purposes the most important source of such reviews is the *Journal of Chemical Education*. However, each of the specialized journals also publishes reviews of books in its field. These signed reviews are usually authoritative and provide a convenient way to review the current chemical literature.

Librarians should be alert to publishers' announcements and should regularly consult their catalogs, the *Cumulative Book Index*, and the *American Book Publishing Record*. A directory of some of the more commonly cited publishers can be found in the *Chemical Abstracts List of Periodicals, 1961* and its supplements. *U. S. Government Research & Development Reports*, published by the Clearinghouse for Federal Scientific and Technical Information, and the *Translations Register Index*, compiled by the National Translations Center, are useful for locating translations.

For U. S. Government publications, see Section VII.

For books in cognate fields, the *Check List of Books and Periodicals for an Undergraduate Physics Library* of the American Institute of Physics, the *Basic Library List* of the Committee on the Undergraduate Program in Mathematics, and the *Basic Library List for the Biological Sciences* prepared by the Commission on Undergraduate Education in the Biological Sciences (CUEBS) should be consulted.

list of library journal holdings which will replace the 1961 and earlier lists.

Review of Shelves

Periodic review of the shelves is necessary and desirable. The shifting of some little used collections to a less accessible but still available locale may free space for incoming and more frequently used titles.

Chemistry Librarian

When the collection warrants a departmental library, the librarian should have both the professional degree in library science and a degree in chemistry or a good background in chemistry. When a specially trained chemistry librarian is not available, it is essential that a chemistry faculty member or chemistry faculty library committee be available to advise the general college librarian.

III. ACQUISITION OF NEW TITLES

The Problem

The selection of new titles in chemistry poses a serious problem because of the flood of new books that appears each year. The problem becomes particularly acute for the smaller college with the more limited budget. Fortunately, there are several ways in which a chemistry department or a librarian may obtain information about new titles in chemistry. The character of the undergraduate program in chemistry is all-important in determining policies leading to decisions as to which titles should be purchased. When the budget is small, the purchase of books for course-reserves should be given priority. It is obvious that in a college which does not graduate chemistry majors the acquisition of the more advanced treatises is not likely to be as useful to the student users and the library dollar might be better spent on books of more general interest. It is inevitable that titles will reflect research interests of the staff. However, judgement and restraint are necessary to provide a wide coverage of subject matter.

It is a great temptation to purchase those books which will carry prestige because of their advanced nature. In the purchase of books, the prime prerequisite should always be usefulness to students and staff. Books acquired but not used by students and faculty are a poor investment in education.

Sources of Information*

The Association of College and Research Libraries, a division of the American Library Association, publishes a monthly magazine, *Choice*. This magazine contains critical reviews of books from all of the fields in which a liberal arts college would normally be interested. The titles in chemistry are few, but are annotated very well by competent chemists. *Choice* is addressed to those libraries whose yearly budget is less than $20,000. While a department of chemistry should not be expected to subscribe to this magazine, it is most likely that the central library would.

The American Association for the Advancement of Science performs a unique function in its bibliographic services. *The AAAS Science Book List for Young Adults,* compiled under the direction of Hilary J. Deason and published in 1964, contains approximately 1400 titles in science and mathematics. The AAAS has also prepared a list of approximately 1350 paperbound science books entitled *A Guide to Science Reading* (2nd ed., New York, New American Library,1966). Titles in both these sources are critically evaluated. They are, in general, suitable for students in junior high school through junior college. Because of the high caliber of the books listed, it would be well to consider purchase of titles from these sources. The books themselves may not be technical or advanced, but they might prove to be of great value to those students studying chemistry who do not intend to become chemists.

Science Books: A Quarterly Review, published by the AAAS, performs an even more valuable service. This quarterly contains critical reviews of books in all fields of science, appearing at

* For addresses of publishers, see Section IX.

IV. JOURNALS AND ABSTRACTS

The extent of the need for current journals by libraries of liberal arts colleges, or institutions of higher learning whose primary function is not research, is open to considerable debate. A number of very basic issues are cogent to this phase of library development: (a) the extent to which the library serves in an instructional capacity; (b) the scope of the independent investigations in the curriculum work; (c) the importance which the administration attaches to research conducted by the senior staff; (d) the number of disciplines other than chemistry with legitimate claims for similar budget support for the acquisition of journals.

The Advisory Council bases its recommendations on the following assumptions: (a) the college offers a major in chemistry, hopefully, but not necessarily, approved by the American Chemical Society; (b) high caliber staff will be attracted only to a department whose library meets at least the basic needs for continuing professional growth; (c) students at all levels are encouraged to seek current information in their course work; and (d) some independent investigation is encouraged on the part of both student and staff.

The almost unending list of journal titles makes a choice most difficult. Since total budgets for library acquisitions will vary widely from institution to institution, the problem becomes further complicated. For larger institutions the budget for journals may be separate from the budget for single copy texts and references. Whatever the mechanisms, sufficient money must be available for continuing subscriptions once a choice is made. Single unindexed issues and short runs are of little long-range reference value.

It is recommended that the basic journals suggested be started without regard to the immediate availability of a complete or even partially complete back file. Too often a library delays initiating a subscription because a complete set is not available. Back issues may be obtained by one of several avenues: (a) purchase through existing agencies, unfortunately often at nearly prohibitive prices; (b) purchase or gift from an emeritus member of the staff or an industrial colleague; (c) advertising through alumni contact publications for either gifts of back issues or funds for this specific purpose; (d) purchase of titles on one of the microformats.

Chemical Abstracts. As important a title as this journal is, a number of factors must be considered before a subscription is placed. The cost is bordering on the prohibitive, yet staff as well as students in chemistry need this as the one journal that will cover all chemistry disciplines. It is to be recognized that this source does not take the place of the specific journals, but general coverage of a topic and original sources can be obtained from *Chemical Abstracts.* If no courses involving student research or independent study are included in the chemistry curriculum, and if no faculty members are carrying out chemical research, then purchase of all sections and indexes of *Chemical Abstracts* is difficult to justify, and the sum that would be spent for this journal could probably be better spent on other purchases in chemistry. As independent study and student and faculty research develop, *Chemical Abstracts* becomes essential and the $1550.00 (1969) annual cost must be included in the budget for chemistry. Colleges and universities may be eligible for a grant of $500.00 from the American Chemical Society toward the subscription price. The value of *Chemical Abstracts* to students and faculty in biology, physics, and other sciences should not be overlooked.

Suggested List

The suggested list of journals follows. Prices are for 1968-1969. Addresses for publishers are in Section IX.

JOURNALS*

Accounts of Chemical Research. Washington, American Chemical Society, 1968- . Monthly, $10.00 per year.

Analytical Chemistry. Washington, American Chemical Society, 1929- . Monthly, $5.00 per year. (Index: v. 1-15, 1929-1943)

Angewandte Chemie (International edition in English). New York, Academic Press, 1962- . Monthly, $38.00 per year.

Annalen der Chemie (Justus Liebigs). Weinheim/Bergstr., Verlag Chemie, 1832- . 10 vols. per year, approx. $73.00 per year.

Biochemistry. Washington, American Chemical Society, 1962- . Monthly, $32.00 per year.

Canadian Journal of Chemistry. Ottawa, National Research Council of Canada, 1929- . Semimonthly, $15.00 per year. (Formerly *Canadian Journal of Research)*

Chemical Abstracts. Washington, American Chemical Society, 1907- . Weekly, $1550.00 per year. (Colleges and universities are eligible for a grant of $500.00 toward the subscription price.)

Chemical and Engineering News. Washington, American Chemical Society, 1923- . Weekly, $6.00 per year.

Chemical Communications. SEE *Journal of the Chemical Society. Section D. Chemical Communications.*

Chemical Reviews. Washington, American Chemical Society, 1924- . Bimonthly, $20.00 per year.

Chemische Berichte. Weinheim/Bergstr., Verlag Chemie, 1868- . Monthly, approx. $60.00 per year. (Formerly *Berichte der Deutschen Chemischen Gesellschaft, Berlin)*

Chemistry. Washington, American Chemical Society, 1964- . Monthly, $4.00 per year.

Discussions of the Faraday Society. Aberdeen, Scotland, The Aberdeen University Press, Ltd., 1947- . Normally published twice per year, price varies.

Endeavour. London, Imperial Chemical Industries, 1942- . Quarterly, free to senior scientists, scientific institutions, and libraries throughout the world.

Helvetica Chimica Acta. Basel, Verlag Helvetica Chimica Acta, 1918- . Approx. 9 nos. per year, $43.50 per year.

Industrial and Engineering Chemistry. Washington, American Chemical Society, 1909- . Monthly, $5.00 per year. (Quarterlies, $10.00 each)

Inorganic Chemistry. Washington, American Chemical Society, 1962- . Monthly, $28.00 per year.

Journal of Biological Chemistry. Baltimore, American Society of Biological Chemists, Inc., 1905- . Semimonthly, $50.00 per year. (Cumulative indexes for each 25 volumes)

Journal of Chemical Education. Easton, Pa. Chemical Education Pub. Co., American Chemical Society, Division of Chemical Education, 1924- . Monthly, $4.00 per year. (Indexes: v. 1-25, 1924-1949; v. 26-35, 1949-1958)

Journal of Chemical Physics. New York, American Institute of Physics, 1933- . Semimonthly, $45.00 per year.

Journal of Inorganic and Nuclear Chemistry. New York, Pergamon Press, 1955- . Monthly, $175.00 per year.

Journal of Organic Chemistry. Washington, American Chemical Society, 1936- . Monthly, $32.00 per year.

Journal of Physical Chemistry. Washington, American Chemical Society, 1896- . Monthly, $32.00 per year.

Journal of the American Chemical Society. Washington, American Chemical Society, 1879- . Biweekly, $32.00 per year.

Journal of the Chemical Society (London). London, The Chemical Society, 1848- . $168.00 per year for all sections. The *Journal* is now divided into four sections:

Section A. Inorganic, Physical and Theoretical. 20 issues per yr.	$52.80
Section B. Physical Organic. 10 issues per year	$27.60
Section C. Organic. 20 issues per year	$57.60
Section D. Chemical Communications. 24 issues per year	$30.00

Nature. London, Macmillan (Journals) Ltd., 1896- . Weekly, $48.00 per year (Air freight)

Quarterly Reviews. London, The Chemical Society, 1947- . Quarterly, $10.80 per year.

* Subscription prices for libraries in the United States.

Science. Washington, American Association for the Advancement of Science, 1895- . Weekly, $12.00 per year.

Scientific American. New York, Scientific American, Inc., new series, 1948- . Monthly, $8.00 per year.

Tetrahedron. New York, Pergamon Press, 1957- Semimonthly, $225.00 per year.

Tetrahedron Letters. New York, Pergamon Press, 1959- . 60 issues per year, $175.00 per year.

Transactions of the Faraday Society. Aberdeen, Scotland, The Aberdeen University Press, Ltd., 1905- . Monthly, price varies. (Index v. 1-20, 1905-1925)

V. REVIEW SERIALS

Many excellent "summary" reviews of progress in the various fields of chemistry are currently available. Serials of this type provide authoritative discussions of significant developments and advances made over a given time period and generally include references to the more important research papers contributing to progress in the field reviewed. Some review serials cover broad areas; others, relatively specialized fields. Some represent reviews of the current research literature; others, collections of symposium or conference papers.

The selection of review serials especially appropriate to the undergraduate chemistry library is difficult and entails many of the same considerations that apply to the selection of journals and abstracts. Three covering chemistry in broad scope are:

Annual Reports on the Progress of Chemistry (The Chemical Society, London)

Chemical Reviews (See Journal listing)

Quarterly Reviews (See Journal listing)

Depending on the special interests of staff, advanced students, and the availability of funds, the addition of review serials covering the several basic branches of chemistry might be considered. **Examples** of these include:

Advances in Analytical Chemistry and Instrumentation (Interscience-Wiley)

Advances in Inorganic Chemistry and Radiochemistry (Academic Press)

Advances in Organic Chemistry; Methods and Results (Interscience-Wiley)

Advances in Physical Organic Chemistry (Academic Press)

Annual Review of Biochemistry (Annual Reviews, Inc.)

Annual Review of Physical Chemistry (Annual Reviews, Inc.)

**Progress in Inorganic Chemistry* (Interscience-Wiley)

**Progress in Organic Chemistry* (Plenum Press)

Progress in Physical Organic Chemistry (Interscience-Wiley)

Reviews of Pure and Applied Chemistry (The Royal Australian Chemical Institute)

Excellent review serials dealing with more specific areas within the several branches of chemistry are also available. **Examples** of these include:

Advances in Enzymology and Related Subjects of Biochemistry (Interscience-Wiley)

Advances in Heterocyclic Chemistry (Academic Press)

Advances in Lipid Research (Academic Press)

Advances in Organometallic Chemistry (Academic Press)

Advances in Protein Chemistry (Academic Press)

Advances in Quantum Chemistry (Academic Press)

Advances in Spectroscopy (Interscience-Wiley)

Annual Review of Nuclear Science (Annual Reviews, Inc.)

Chromatographic Reviews (American Elsevier)

Nutrition Reviews (Nutrition Foundation, Inc.)

Progress in Nucleic Acid Research and Molecular Biology (Academic Press)

Progress in Reaction Kinetic•
(Pergamon Press)

•*Progress in Stereochemistry*
(Plenum Press)

References to other review serials may be found in *Index to Reviews, Symposia Volumes, and Monographs in Organic Chemistry,* edited by Kharasch, Wolf, and Harrison.••

Valuable review articles are also found in regular or special issues of research journals. An example of the latter is the special "Annual Reviews" issue of *Analytical Chemistry*. Another example is the publication of meeting symposium papers in the *Journal of Chemical Education*. Still another source of organized reports on current progress in the various fields of chemistry is the abstracts of papers presented at scientific meetings. Arrangements might be made to secure these volumes from participating faculty members. The American Chemical Society publishes an *Advances in Chemistry Series*. Each volume is a collection of symposium papers on current, specialized topics.

After the acquisition of a few serials covering a wide range of chemical interests, expansion of this area of the undergraduate chemistry library requires a careful balancing of the special needs of the faculty and advanced students against available funds and the need for journals, monographs and general reference works. It should be remembered that with appropriate journals, index serials, and abstracting journals at hand one can develop his own review of progress.

• These serial titles are also included in Section VIII.

•• Kharasch, Norman, Walter Wolfe and Elaine C. P. Harrison, eds. *Index to reviews, symposia volumes and monographs in organic chemistry for the period 1940-1960.* New York, Pergamon Press, 1962.

..... *Index to reviews, symposia volumes and monographs in organic chemistry for the period 1961-1962.* New York, Pergamon Press, 1964.

..... *Index to reviews, symposia volumes and monographs in organic chemistry for the period 1963-1964.* New York, Pergamon Press, 1966. (For addresses of publishers, see Section IX.)

VI. FOREIGN LANGUAGE TITLES

While a considerable fraction of the world's chemical literature is published in English or is available in translation (at prices which are beyond the means of most college libraries), it is considered good practice to at least expose the undergraduate chemistry major to some journal articles and books written in a foreign language. It is felt that even if the student's senior research problem does not require this, some familiarity with foreign publications is highly desirable in order to prepare him for a successful career in chemistry.

A very helpful book to improve facility in chemical German is *Englische und Deutsche chemische Fachausdrucke; Ein Leitfaden der Chemie in englischer und deutscher Sprache (German-English Chemical Terminology; An Introduction to Chemistry in English and German.)*• This book has both English and German texts printed side by side on opposite pages. The coverage of topics is modern. The subject index has more than 10,000 entries.

The choice of foreign language journals for the chemistry library will depend largely on the interests of the faculty, and no single publication can be specified as being most important.

Some familiarity with a foreign language is of course essential for the use of such standard reference works as *Beilstein, Houben-Weyl, Landolt-Börnstein, Gmelin* and other comprehensive treatises.

Unfortunately, these sets represent unusually costly multiple volume offerings. Each one is of greater use in research than in the teaching function of a chemistry department. As is the case with *Chemical Abstracts*, the library funds budgeted for research materials will dictate the possi-

• Fromherz, Hans and Alexander King. *Englische und Deutsche chemische Fachausdrucke; ein Leitfaden der Chemie in englischer und deutscher Sprache.* 4., neubearb. und erweiterte Aufl. Weinheim/Bergstr., Verlag Chemie, 1963.

bility of adding these titles to the collection. Some pertinent facts are given on these titles to help departments and librarians. There is no question but that the total amount needed for all volumes could perhaps be better spent to bolster neglected areas in which the subject matter is rapidly expanding.

A complete set of *Beilsteins Handbuch der organischen Chemie* (4. Aufl.) is available from Springer-Verlag New York,** for the sum of $8,589.00 (1969). The set at this price includes all volumes through the third Supplement, Volume VII, Part 3, May 1969. A complete set updated to the same point is also available from Stechert-Hafner, Inc. for the sum of $7,206.00 (1969). Springer-Verlag prices are for books in the original edition. Stechert-Hafner supplies the main volumes (Main Series), first Supplement, and the first five volumes of the second Supplement in the reprint edition. *A Brief Introduction to the Use of Beilstein's Handbuch der organischen Chemie* by Ernest H. Huntress (2nd ed. New York, Wiley, 1938) provides a simple explanation of the method of classification of organic compounds used in the 4th edition of *Beilstein.*

Another laboratory reference treatise for organic chemistry is *Methoden der organischen Chemie (Houben-Weyl),* published by Georg Thieme Verlag. A standard work dealing with the preparation and rearrangement of classes of compounds, the 4th edition is to be complete in 16 volumes, some appearing in several parts. A full set of the sections completed to March 1969 is available from Intercontinental Medical Book Corporation for $1350.00. The subscription price for standing orders for the whole work is 10 per cent less than the above price.

Gmelins Handbuch der anorganischen Chemie (8. Aufl.) is under constant preparation by the Gmelin Institute, a member of the Max Planck Society for the Advancement of Science. A complete set is available from Walter J. Johnson, Inc. for $11,175.75. There are 210 parts and 65,567 pages as of May 1969. Where coverage of special interest areas is desired, it is possible to buy selected volumes of *Gmelin.* Such is not possible for *Beilstein.* The Panel responsible for this basic title list has stressed the concept of broad coverage of chemistry as opposed to narrower discipline specialty titles. Certainly, purchase of both *Beilstein* and *Gmelin* would represent a heavy financial commitment.

The fourth title, *Landolt-Börnstein, Zalenwerte und Funktionen aus Physik, Chemie, Astronomie, Geophysik und Technik* (6. Aufl.), is broader in field coverage but narrower in scope since the content is essentially numerical constants, technological and physical data. In the chemistry collection of the liberal arts college library, there is less justification for this set than for the *Gmelin, Houben-Weyl or Beilstein.* The Panel does not, in such a statement, however, minimize the importance of this title. The volumes of the sixth edition are listed here with costs from Springer-Verlag.

Vol. I: *Atoms and Molecular Physics*
Pt. 1, 1950, $31.50; Pt. 2, 1951, $42.00; Pt. 3, 1951, $54.50; Pt. 4, 1955, $79.50; Pt. 5, 1952, $37.00

Vol. II: *Properties of Materials in Their States of Aggregation*
Pt. 1, in preparation; Pt. 2A, 1960, $112.00; Pt. 2B, 1962, $127.50; Pt. 2C, 1964, $97.00; Pt. 3, 1956, $49.50; Pt. 4, 1961, $109.50; Pt. 5A, in preparation; Pt. 5B, 1968, $57.50; Pt. 6, 1959, $112.00; Pt. 7, 1960, $119.50; Pt. 8, 1962, $119.00; Pt. 9, 1962, $124.00; Pt. 10, 1967, $26.50

Vol. III: *Astronomy and Geophysics,* 1952, $62.00

Vol. IV: *Technological*
Pt. 1, 1955, $72.00; Pt. 2A, 1963, $117.00; Pt. 2B, 1964, $132.50; Pt. 2C, 1965, $129.50; Pt. 3, 1957, $99.00; Pt. 4A, 1967, $127.50; Pt. 4B, in preparation

A new series *Landolt-Börnstein, Zahlenwerte und Funktionen aus Naturwissenschaften und Technick* began to appear from Springer-Verlag in 1961. Published as of March 1969 were:

Group I: *Nuclear Physics and Technology*
v. 1, *Energy levels of nuclei: A=5 to A=257,* 1961, $53.00; v. 2, *Nuclear radii,* 1967, $9.50; v. 3, *Numerical tables for angular correlation computations in α-, β- and γ- spectroscopy: 3j-, 6j-, 9j- sym-*

** For addresses of publishers, see Section IX.

bols, F- and Γ- coefficients, 1968, $82.00; v. 4, in preparation

Group II: *Atomic and Molecular Physics*
v. 1, *Magnetic properties of free radicals*, 1965, $17.00; v. 2, *Magnetic properties of coordination and organometallic transition metal compounds*, 1966, $58.00; v. 3, *Luminescence of organic substances*, 1967, $49.00; v. 4, *Molecular constants from microwave spectroscopy*, 1967, $27.50; v. 5, *Molecular acoustics*, 1967, $39.00

Group III: *Crystal and Solid State Physics*
v. 1, *Elastic, piezoelectric, piezooptic and electrooptic constants of crystals*, 1966, $17.00

Group IV: (In preparation)

Group V: (In preparation)

Group VI: *Astronomy, Astrophysics and Space Research*
v. 1, *Astronomy and astrophysics*, 1965, $78.50

VII. U.S. GOVERNMENT PUBLICATIONS

The various governmental units in many countries issue a very large number of technical publications. Many of these documents are of concern to chemists and chemical engineers. Only those of the United States can be considered here, and the discussion is limited to Federal publications.

There are two very distinct types of these publications: (1) patents, which are issued by the United States Patent Office; and (2) bulletins (under various names) and reports, which are issued by a number of subdivisions of the government. These are treated separately.

Patents

In the opinion of many industrial chemists and chemical engineers, patents, more than any other kind of publication, reveal the expanding frontiers of applied science. This includes chemistry, for which some 35,000 patents are currently abstracted each year by *Chemical Abstracts*.

As defined by the U.S. Patent Office, these patents cover (1) machines, (2) processes, and (3) compositions of matter. They must have novelty and must be described in sufficient detail to enable one skilled in the art involved to make or use the invention described.

Usually the description, and accompanying claims, are so detailed and involved in legal verbiage that an abstract of much value is nearly impossible. A copy of the patent must be examined for these details.

A very small library might have a few books about patents, such as the following:

Forman, H. I. (ed.) *Patents, Research, and Management*, Central Book Company, New York, 1961. This book contains an annotated bibliography of 93 publications.

Nainmark, G. M. *A Patent Manual for Scientists and Engineers*, Charles C. Thomas, Publisher, Springfield, Illinois, 1961.

Patents for Chemical Inventions; Symposia Sponsored by the Division of Chemical Literature and the Division of Industrial and Engineering Chemistry at the 145th Meeting of the American Chemical Society, New York, N.Y., September 9 and 13, 1963, Washington, American Chemical Society, 1964. (Advances in Chemistry Series, no. 46)

Thomas, E. *Chemical Inventions and Chemical Patents*, M. A. Auslander (ed.), Clark Boardman Company, New York, 1964.

These books indicate the general nature of patents as literature. Along with them there might be assembled a small collection of chemical patents to illustrate the three kinds which are of interest to chemists. They would also serve to illustrate the intricacies of patent descriptions and claims.

Student interest may be generated by having each one select from *Chemical Abstracts* a United States patent of interest and send for a copy to the Commissioner of Patents, Washington, D.C. 20231. They cost 50 cents each. Further details, as well as information about foreign patents, are found in the front of each issue of *Chemical Abstracts*.

Public Documents

A dozen or more subdivisions of the Federal

government issue a vast number of scientific publications. Many of these have chemical interest. Their nature varies from mere statistical compilations, such as the analyses of Indiana coals, to very sophisticated technical bulletins.

Among the more important bureaus and agencies issuing such publications are the following:

Department of Agriculture:
- Agricultural Research Service
- Forest Service

Department of Commerce:
- Bureau of the Census
- National Bureau of Standards

Department of Health, Education, and Welfare:
- Food and Drug Administration
- Public Health Service
  - National Institutes of Health
  - National Library of Medicine

Department of the Interior:
- Bureau of Mines
- Geological Survey

Other departments: A number of agencies, especially those of the armed services, issue many technical reports. Many are classified, at least for a time. The Clearinghouse for Federal Scientific and Technical Information (CFSTI) serves as a source of information on available (declassified) reports.

Independent Agencies: Some of the independent agencies having publications of interest include the Atomic Energy Commission, the Federal Trade Commission, the General Services Administration, the National Aeronautics and Space Administration, the Tariff Commission, and the Tennessee Valley Authority. A particularly valuable publication of the Atomic Energy Commission is *Nuclear Science Abstracts.*

Locating specific documents may not be easy. From 1895 there is a complete listing in the *Monthly Catalog of United States Government Publications*. The monthly indexes are cumulated annually.

For convenience in ordering, the Superintendent of Documents, U.S. Government Printing Office sells coupons in five-cent denominations.

Research and Development Reports

A vast number of reports on government-sponsored research has been issued in recent years. The Clearinghouse for Federal Scientific and Technical Information (U.S. Department of Commerce, Springfield, Va.) collects such reports, announces their availability, and sells copies. Three publications may be mentioned. The semimonthly *U.S. Government Research & Development Reports* contains abstracts for 22 subject categories (fields). *Announcements in Science and Technology* provides quick review of current scientific and technical reports in 46 subject areas, of which perhaps a third may have chemical interest. *Fast Announcements* gives notification of the availability of specific documents.

For some years the Clearinghouse for Federal Scientific and Technical Information has been issuing *U.S. Government Research & Development Reports,* with a *Fast Announcement Service* for selected documents. The first issue of each volume of *Chemical Abstracts* lists other sources of government reports, including some twenty foreign countries.

In a small library a sampling of governmental publications might include examples such as the following:

1. A few annual reports, e.g.,
   - Agricultural Research Service
   - Public Health Service
   - National Bureau of Standards
   - Bureau of Mines
   - Geological Survey
   - Atomic Energy Commission
   - Tariff Commission.
2. Lists of publications for the agencies of most interest to the institution having the library. The agencies listed above are good examples.
3. Free price lists for these publications are available and are requested by number. The following are probably of most general interest.
   - 11 Home Economics
   - 15 Geology
   - 37 Tariff and Taxation
   - 38 Animal Industry
   - 41 Insects
   - 43 Forestry
   - 44 Plants
   - 46 Soils and Fertilizers
   - 47 Health and Hygiene

58 Mines
62 Commerce
64 Scientific Tests, Standards
70 Census
84 Atomic Energy

In these lists a student may find something of interest and send for a copy of the publication.

4. Have the library placed on the mailing list for the biweekly *Selected United States Government Publications*. Many titles are included for new and recent publications, with a brief statement of the contents and price of each.
5. As examples of government documents, obtain a few representative bulletins for students to see. Thus, *Minerals Yearbook* contains a wealth of information on the production and use of mineral resources.

Preferably, the selections should reflect first the interests of the students and the staff whom the library serves. If these interests are very narrow, it would be well to have a few selections for other areas to illustrate what is being done in them.

VIII. SUGGESTED TITLE LIST

Introduction

The books in this list are in the areas of analytical, biological, inorganic, organic and physical chemistry. No attempt has been made to include chemical engineering, although many titles are applicable to this field. In general, introductory texts have not been included in this list. Opinions differ concerning the desirable availability of these on the library shelves to the student. In any event, several different and approximately equally useful texts can be selected from the annual "Book Buyers' Guide" published in the September issue of the *Journal of Chemical Education*. Acquisitions in these areas probably should be culled and renewed at least every two or three years. Many libraries will want to have on their shelves the modern secondary school materials prepared by the Chemical Education Material Study (CHEMS), originally published by Freeman (Revisions are published by Houghton Mifflin, D. C. Heath (Raytheon), and Prentice-Hall.) and the Chemical Bond Approach Project (CBA), published by McGraw-Hill.

The list is arranged alphabetically. Entries are by author or editor unless the work is better known by title; then a SEE reference from author or editor to the title entry is given. In the case of multiple authorship, entry is under the first author and only the first three authors are included in the entry. Series are listed in the parentheses following the date of publication. Unless there have been additions or corrections in the reprinting, the copyright date has been given.

As an aid to librarians wishing to order Library of Congress cards, the Library of Congress card number, **when available,** is given for each entry. The Library of Congress and the Dewey Decimal classification numbers are provided as a guide for placing books in classification areas. The classification numbers used are from the Library of Congress card or from the University of Illinois card catalog. **Sample entry:**

ACHESON, Richard M. An introduction to the chemistry of heterocyclic compounds. 2nd ed. New York, Interscience-Wiley, 1967. $8.95
67-17823 QD400.A16 1967 547.59

Explanation:

67-17823 is the Library of Congress card order number.

QD400.A16 1967 is the Library of Congress classification number.

547.59 is the Dewey Decimal classification number.

The prices are taken from publishers' announcements and catalogs, the *Cumulative Book Index*, and the *American Book Publishing Record*. For books that are out-of-print, the last price available is given.

Treatises and serial publications which are still being published have an open entry.

The Panel has included a few out-of-print books which it considers important since, to date, there is nothing comparable to them. Frequently, out-of-print books can be located through book dealers. It is hoped that out-of-print books in this list will be reprinted in either hardback or paperback editions. Books in preparation or in press are so indicated.

SUGGESTED TITLES FOR AN UNDERGRADUATE CHEMISTRY LIBRARY

ACHESON, Richard M. An introduction to the chemistry of heterocyclic compounds. 2nd ed. New York, Interscience-Wiley, 1967. $8.95
67-17823 QD400.A16 1967 547.59

ADAMS, D. M. and J. B. Raynor. Advanced practical inorganic chemistry. New York, Wiley, 1965. $6.00
65-23104 QD45.A27 546

ADAMSON, Arthur W. Physical chemistry of surfaces. 2nd ed. New York, Interscience-Wiley, 1967. $15.00
67-13941 QD506.A3 1967 541.3453

ADAMSON, Arthur W. Understanding physical chemistry; a set of simple yet difficult examination questions and their methods of solution. New York, W. A. Benjamin, 1964. Part I, $10.00; $3.95 pb; Part II, $10.00; $3.95 pb
64-22292 QD453.A26 541.076

ADDISON, William E. The allotropy of the elements, New York, American Elsevier, 1968 ©1964. (Oldbourne chemistry series) $5.50
66-3661 QD470.A3 541.2252

ALYEA, Hubert N. TOPS: Tested overhead projection series. SEE JOURNAL OF CHEMICAL EDUCATION. TOPS: Tested overhead projection series.

ALYEA, Hubert N. and Frederic B. Dutton (eds.) Tested demonstrations in chemistry. SEE JOURNAL OF CHEMICAL EDUCATION. Tested demonstrations in chemistry.

AMBROSE, Douglas and Barbara A. Ambrose. Gas chromatography. Princeton, N.J., Van Nostrand, 1962 ©1961. $6.75
62-6411 QD271.A47 1962 544.92

AMDUR, Isadore and Gordon G. Hammes. Chemical kinetics; principles and selected topics. New York, McGraw-Hill, 1966. (McGraw-Hill series in advanced chemistry) $10.50
66-17910 QD501.A64 541.394

AMERICAN Chemical Society. Handbook for authors of papers in the research journals of the American Chemical Society. Washington, American Chemical Society, 1965. $2.00 pb
65-28159 T11.A4 808.0665402

AMERICAN Chemical Society. Physical properties of chemical compounds by Robert Dreisbach. SEE DREISBACH, Robert R. Physical properties of chemical compounds.

AMERICAN Chemical Society. Committee on Professional Training. Directory of graduate research, 1967. Washington, American Chemical Society, 1967. $5.00 pb
A55-646 rev. Z5525.U5A6 016.54

AMERICAN Institute of Physics. Temperature, its measurement and control in science and industry. New York, Reinhold, 3 vols. in 5 vols., 1941-1963. v. 1, 1941, $11.00; v. 2, 1955, $12.00; v. 3, pt. 1, 1962, $33.00; v. 3, pt. 2, 1962, $38.50; v. 3, pt. 3, 1963, $30.00
41-3959 QC271.A6 536.5

ANDERSON, Jay M. Mathematics for quantum chemistry. New York, W. A. Benjamin, 1966. $9.50; $3.95 pb
66-13997 QD461.A5 541.28

ASIMOV, Isaac. The neutrino, ghost particle of the atom. Garden City, N.Y., Doubleday, 1966. $4.95
66-17073 QC173.A78 539.7

ATKINS, Peter W. and M. C. Symons. The structure of inorganic radicals; an application of electron spin resonance to the study of molecular structure. New York, American Elsevier, 1967. $21.75
66-20555 QD471.A8 541.224

AUDRIETH, Ludwig F. and Jacob Kleinberg. Nonaqueous solvents; applications as media for chemical reactions. New York, Wiley, 1953. $8.50
52-12057 TP247.5.A85 541.37

AYLETT, B. J. and B. C. Smith. Problems in inorganic chemistry. New York, American Elsevier, 1966 ©1965. $5.75
66-18189 QD42.A9 546.076

AYRES, David C. Carbanions in synthesis. New York, American Elsevier, 1968 ©1966. (Oldbourne chemistry series) $10.50
66-69082 QD262.A95 547.2

AZEOTROPIC DATA: tables of azeotropes and nonazeotropes. Compiled by Lee H. Horsley [et al] Washington, American Chemical Society, v. 1- , 1952- . (Advances in chemistry series, no. 6, no. 35, etc.) no. 6, 1952, $5.00, no. 35, 1962, $5.00 pb; 3rd vol. in press
52-3085 rev. QD1.A355 no. 6 541.36

BACK, Margaret H. and Keith J. Laidler (eds.) Selected readings in chemical kinetics. New York, Pergamon, 1967. (The Commonwealth and international library. Selected readings in physical chemistry) $5.50
66-30624 QD501.B14 1967 541.39

BAILAR, John C., Jr. (ed.) The chemistry of the coordination compounds. New York, Reinhold, 1956. (American Chemical Society. Monograph series, no. 131) $18.50
56-6686 QD471.B23 541.39

BAKER, Jeffrey J. W. and Garland E. Allen. Matter, energy, and life; an introduction for biology students. Reading, Mass., Addison-Wesley, 1965. (Addison-Wesley series in biology) $2.95 pb
64-20832 QH345.B32 574.19

BALDWIN, Ernest. Dynamic aspects of biochemistry. 5th ed. New York, Cambridge University Press, 1967. $9.50
67-26065 QP514.B28 1967 574.192

BALLHAUSEN, Carl J. Introduction to ligand field theory. New York, McGraw-Hill, 1962. (McGraw-Hill series in advanced chemistry) $13.00
62-13206 QD475.B3 541

BANKS, Ronald E. Fluorocarbons and their derivatives. New York, American Elsevier, 1968 ©1964. (Oldbourne chemistry series) $3.75 pb
66-3660 QD412.F1B3 547.02

BARROW, Gordon M. Introduction to molecular spectroscopy. New York, McGraw-Hill, 1962. $12.50
62-12478 QC451.B33 539.12

BARROW, Gordon M. Physical chemistry. 2nd ed. New York, McGraw-Hill, 1966. (McGraw-Hill series in undergraduate chemistry) $13.50
65-25914 QD453.B32 1966 541

BARROW, Gordon M. The structure of molecules; an introduction to molecular spectroscopy. New York, W. A. Benjamin, 1963. (The general chemistry monograph series) $6.00; $2.95 pb
63-15835 QD95.B37 544.6

BASOLO, Fred and Ralph G. Pearson. Mechanisms of inorganic reactions; a study of metal complexes in solution. 2nd ed. New York, Wiley, 1967. $17.95
66-28755 QD171.B32 1967 546.3

BASOLO, Fred and Ronald C. Johnson. Coordination chemistry; the chemistry of metal complexes. New York, W. A. Benjamin, 1964. (The general chemistry monograph series) $6.00; $2.95 pb
64-22273 QD471.B316 541.396

BATES, Roger G. Determination of pH; theory and practice. New York, Wiley, 1964. $13.95
64-13210 QD561.B32 1964 541.372

BEHRMAN, Abraham S. Water is everybody's business; the chemistry of water purification. Garden City, N.Y., Doubleday, 1968. (Chemistry in action series) $4.50; $1.45 pb
68-2841 TD430.B38 628.16

BELL, Jerry A. (ed.) Chemical principles in practice. Reading, Mass. Addison-Wesley, 1967. (Addison-Wesley series in chemistry) $4.95 pb
67-21293 QD45.B454 540.28

BELL, Ronald P. The proton in chemistry. Ithaca, N.Y., Cornell University Press, 1959. (The George Fisher Baker non-resident lectureship in chemistry at Cornell University, 1958) $6.75
60-49 QD501.B386 541.3

BELLAMY, L. J. The infra-red spectra of complex molecules. 2nd ed. New York, Barnes & Noble, 1966 ©1958. $8.75
58-3130 QC457.B47 1958 535.84

BENFEY, Otto T. From vital force to structural formulas. Boston, Houghton Mifflin, 1964. (Classic researches in organic chemistry, 0-1) $2.25
64-4822 QD476.B4 1964 547.12

BENFEY, Otto T. The names and structure of organic compounds. New York, Wiley, 1966. $2.95 pb
66-16550 QD257.B4 547.0077

BENNETT, Harry (ed.) The chemical formulary; a collection of valuable, timely, practical commercial formulae and recipes for making thousands of products in many fields of industry. New York, Chemical Pub. Co., v. 1- , 1933- . v. 1-14, $8.00 ea.; cumulative index, v. 1-10, $12.00. v. 15, in prep.
33-36898 rev. TP151.C53 660.831

BENNETT, Thomas P. and Earl Frieden Modern topics in biochemistry; structure and function of biological molecules. New York, Macmillan 1966. $2.95 pb
66-17380 QP514.B44 574.192

BENSON, Sidney W. The foundations of chemical kinetics. New York, McGraw-Hill, 1960. (McGraw-Hill series in advanced chemistry) $15.00
59-9984 QD501.B388 541.394

BENT, Henry A. The second law; an introduction to classical and statistical thermodynamics Fair Lawn, N.J., Oxford University Press. 1965. $6.00; $3.75 pb
65-15608 QC311.B4 536.7

BENTLEY, Kenneth W. (ed.) The chemistry of natural products. v. 6, SEE DYKE, Stanley F. The chemistry of the vitamins.

BERG, Eugene W. Physical and chemical methods of separation. New York, McGraw-Hill, 1963. $12.50
62-18520 QD63.S4B4 543

BERSOHN, Malcolm and James C. Baird. An introduction to electron paramagnetic resonance. New York, W. A. Benjamin, 1966. (Frontiers in chemistry) $14.50
66-10907 QC762.B43 539

BETHE, Hans A. and Philip Morrison. Elementary nuclear theory. 2nd ed. New York, Wiley, 1966 ©1956. (Science editions) $1.65 pb
56-7152 QC173.B48 1956 539.7

BHACCA, Norman S., D. P. Hollis, L. F. Johnson [et al] (comps.) NMR spectra catalog. SEE VARIAN Associates, Palo Alto, Calif. Instrument Division. NMR spectra catalog.

BIBLE, Roy H., Jr. Guide to the NMR empirical method; a workbook. New York, Plenum Press, 1967. $9.50
66-11695 QC762.B5 538.3

BILLMEYER, Fred W., Jr. Textbook of polymer science. New York, Wiley, 1962. $13.95
62-18350 QD281.P6B43 1962 541.7

BIOCHEMICAL PREPARATIONS. New York, Wiley, v. 1- , 1949- . v. 1, 1949, $5.00; v. 2, 1952, $6.00; v. 3, 1953, $6.00; v. 4, 1955, $5.50; v. 5, 1957, $6.00; v. 6, 1960, $6.50; v. 7, 1960, $6.50; v. 8, 1961, $7.50; v. 9, 1962, $9.75; v. 10, 1963, $9.75; v. 11, 1966, $8.00; v. 12, 1968, $8.50
49-8306 QP509.B5 612.015072

BLAEDEL, Walter J. and Vulliers W. Meloche. Elementary quantitative analysis, theory and practice. 2nd ed. New York, Harper & Row, 1963. $11.95
63-13613 QD101.B48 1963 545

BLEULER, Ernest and George J. Goldsmith. Experimental nucleonics. New York, Holt, Rinehart and Winston, 1952. $7.00
52-5581 QC784.B5 539.7

BOBBITT, James M. Thin-layer chromatography. New York, Reinhold, 1963. $9.50
63-21843 QD271.B79 547.3592

BOBBITT, James M., Arthur E. Schwarting, and Roy J. Gritter. Introduction to chromatography. New York, Reinhold, 1968. (Reinhold science studies) $4.50 pb
68-22841 QD117.C5B6 544.92

BODANSKY, Miklos and Miguel A. Ondetti. Peptide synthesis. New York, Interscience-Wiley, 1966. (Interscience monographs on chemistry) $10.50
66-20387 QD431.B76 547.75

BORN, Max. Atomic physics. 7th ed. From the original translation of John Dougall revised by the author in collaboration with R. J. Blin-Stoyle. New York, Hafner, 1962. $7.50
58-905 QC173.B634 1958 539.7

BOWEN, H. J. M. [et al] (comps.) Tables of interatomic distances and configuration in molecules and ions. SEE CHEMICAL Society, London. Tables of interatomic distances and configuration in molecules and ions.

BOYLE, Robert. The sceptical chymist. Introd. by E. A. Moelwyn-Hughes, New York, Dutton, 1964. (Everyman's library. Science) $2.25
NUC64-63628 QD27.B75 540.1

BRADLEY, Rupert S. and Duncan C. Munro. High pressure chemistry. New York, Pergamon Press, 1965. $4.95
65-19842 QD501.B7825 541.3

BRAUDE, Ernest A. and Frederick C. Nachod (eds.) Determination of organic structures by physical methods. New York, Academic Press, 2 vols., 1955-62. v. 1, 1955, $20.00; v. 2, 1962, $18.00
54-11057 QD476.B7 541

BRAUER, Georg (ed.) Handbook of preparative inorganic chemistry. 2nd ed. New York, Academic Press, 2 vols., 1963-65. v. 1, 1963, $36.00; v. 2, 1965, $32.00
63-14307 rev. QD151.B733 546

BRESLOW, Ronald. Organic reaction mechanisms; an introduction. New York, W. A. Benjamin, 1965. (The organic chemistry monograph series) $8.95; $3.95 pb
65-11373 QD476.B715 547.139

BROPHY, James J. Basic electronics for scientists. New York, McGraw-Hill, 1966. $10.50
65-26162 TK7815.B74 621.381

BROWN, Herbert C. Hydroboration. New York, W. A. Benjamin, 1962. $16.00
62-12322 QD281.H78B7 547.23

BRUNNER, William F., Jr. and Thomas H. Batzer. Practical vacuum techniques. New York, Reinhold, 1965. $9.00
65-25375 TJ940.B78 621.55

BUERGER, Martin J. Elementary crystallography; an introduction to the fundamental geometrical features of crystals. Rev. Printing. New York, Wiley, © 1956, repr. 1963. $12.95
NUC65-13115 QD905.B96 548

BUTLER, James N. Ionic equilibrium; a mathematical approach. Reading, Mass., Addison-Wesley, 1964. (Addison-Wesley series in chemistry) $11.95
63-14686 QD561.B954 541.372

BUTTERFIELD, Herbert. The origins of modern science: 1300-1800. Rev. ed. New York, Free Press, 1965. © 1957. $1.95 pb
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